

**REMARKS**

Claims 1-22 are pending in the present application. Claims 1 and 9 are independent and amended. Claims 16-22 are new.

Claims 1-15 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Document 1: Impact Engineering, Nikkan Kogyo Newspaper Ltd., October 28, 1988, pps. 173-183 in view of Document 2: Lecture Thesis of 16<sup>th</sup> Series of Chugoku Branch of Japan Design Engineering Society Ass'n, June 20, 1988, pps. 25-29. Applicants respectfully traverse this rejection.

Applicants respectfully submit that there is no motivation to combine the teachings of Document 1 and Document 2. In particular, references teach away from a combination when the combination would produce a seemingly inoperable device. In re Sponnoble, 160 USPQ 237, 244 (CCPA 1969).

Document 1 pertains to a striker bar type Hopkinson bar method including a striker bar, an input bar, a specimen and an output bar, and gauges on the input and output bars. As shown in Fig. 7.1, gauge G<sub>B</sub> is positioned on the input bar and gauge G<sub>C</sub> is position on the output bar. However, the input and output bars disclosed by Document 1 are made of steel and the number of gauges disclosed is limited to only three.

Document 2 pertains to an impact compression testing apparatus designed specifically for testing viscoelastic materials including an input bar, strain gauges, a striker bar, and an output bar. Unlike the apparatus

in Document 1, the input and the output bars of document 2 are made of PMMA, which is a viscoelastic material.

The use of PMMA in the input and output bars distinguishes the apparatus in Document 2 from the apparatus in Document 1. In particular, Document 2 states, “the impact compression test for soft materials such as rubber, has been impossible due to the difference of characteristic impedance between the stress-bar material and the specimen material.” See Document 2, page 6 lines 13-15. This statement is particularly applicable to the impact compression apparatus of Document 1, which incorporates steel bars. For example, steel has a substantially different characteristic impedance than a viscoelastic material causing a test on a viscoelastic material to be impossible using the apparatus of Document 1. On the other hand, the apparatus of Document 2 uses PMMA for the stress bar and allows the impact compression test for soft materials to be available.

Due to the inapplicability of the apparatus in Document 1 to the specific problem of testing viscoelastic materials that Document 2 is specifically attempting to address, one of ordinary skill in the art would not be motivated to combine any teaching of Document 1 with Document 2.

Further, Documents 1 and 2, either alone or in combination, do not teach or suggest all the features of independent claims 1 and 9. In particular, the references do not teach, “a length of said output bar is set to a range of 500 mm to 2500mm both inclusive; and a length of said

input bar is set to a range from 1500mm to 2500mm both inclusive,” as recited by claim 1 and, “hitting a front end of an input bar having a length in the range of 1500mm to 2500mm, with a specimen held between a rear end of said input bar and a front end of an output bar having a length in the range of 500mm to 2500mm,” as recited by claim 9. Although the Examiner contends the features of claim 1 and 9 are rendered obvious by experimental choice, the Examiner’s above referenced contentions are without any basis and improper.

The Examiner has not pointed to any teaching within the prior art that recognizes any problem, which would suggest that the input and output bars be of any particular length. Rather, Document 2 arbitrarily sets the lengths of the input and output bars at 1000mm without recognizing any need to change the length. Document 1 also does not address selecting the length of the input and output bars for any particular reasons.

It is well settled that experimental choice which is also referred to as design choice cannot be a justification for rejecting claimed features unless there is some teaching or suggestion in the art. For example, in In re Chu, 66 F.3d 292, 36 USPQ2d 1089 (Fed. Cir. 1995), the Federal Circuit reversed a rejection made by an Examiner and upheld by the Board of Appeals, wherein the difference between the claimed invention and the prior art was alleged to be merely a matter of "design choice". The Court of Appeals for the Federal Circuit, in Chu, held that in a proper obviousness

determination, whether the changes from the prior art are minor or not, the changes must be evaluated in terms of the whole invention, including whether the prior art provides any teaching or suggestion to one of ordinary skill in the art to make the changes that would produce patentees' device.

As discussed in the Specification on page 8, line 17 – page 10, line 20, the claimed range of lengths of the input and output bar are selected specifically to control the transmittance of waves through the bars. In particular, a transmitted strain wave may be reflected by the end of the output bar causing inaccurate readings in the gauges of the output bar. On the other hand, if the output bar is too long, then the output bar may bend and cause noise in the strain wave. Similar concerns exist for the length of the input bar.

Neither Document 1 nor Document 2 recognizes that the length of either the input or output bars is important for any reasons including wave transmittance. Document 2 provides an output bar absorber (see page 1, line 10) as an attachment to the output bar. The output absorber bar may absorb some of the waves at the end of the output bar rather than allowing the waves to be reflected. However, there is no clear teaching of this concept in Document 1.

Further, the Examiner has not provided any teachings or suggestions of why it would have been obvious to one of ordinary skill in the art to alter the lengths of the input and output bars of either

Document 1 or Document 2. Therefore, the Examiner has failed to provide any basis for teaching the claimed features quoted above, and this rejection is improper.

Additionally, neither reference teaches, "a length of said input bar is set to a range from 1500mm to 2500mm both inclusive," as recited by claim 1 and similarly claim 9.

Lastly, modifying any apparatus of Document 1 with the teachings of Document 2 would render an inoperable device. For example, if the input and output bars were of an arbitrary length, the waves would not be properly transmitted through the input and output bars and the gauges would yield inaccurate readings. Therefore, Document 1 and 2 teach away from combination according to the standard of Sponnoble.

Accordingly, claims 1 and 9 are allowable over the prior art. Regarding claims 2-8 and 10-15, these claims are allowable for at least the same reasons as their corresponding independent claims. Therefore, Applicants respectfully request withdrawal of this rejection.

#### ***NEW CLAIMS***

Newly added claims 16-22 are supported in the specification. For example, claim 16 is supported by at least Figure 1. Claims 17-22 are supported on at least page 42, lines 7 – end.

Claims 16-22 are allowable for at least the same reasons as their corresponding independent claims.

**CONCLUSION**

The Examiner is respectfully requested to enter this Amendment After Final in that it raises no new issues and places the application in condition for allowance, or in the alternative better form for Appeal. Early and favorable notice to that effect is respectfully solicited.

Attached hereto is a marked-up version of the changes made to the application by this Amendment.

Applicant respectfully petitions under the provisions of 37 CFR 1.136(a) and 1.17 for a two-month extension of time in which to respond to the Examiner's Office Action. The Extension of Time Fee in the amount of \$400.00 is attached hereto.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to contact the Jayne Saydah (Reg. No. 48,796) at (703) 205-8000, in the Washington, D.C. area.

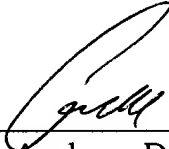
If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees

required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly,  
extension of time fees.

Respectfully submitted,

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By



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Attachment: Version With Markings Showing Changes Made

**VERSION WITH MARKINGS SHOWING CHANGES MADE**

***IN THE CLAIMS***

Claims 16-22 have been added.